Claims

1. A sintered porous body comprising at least one layer made of sinterable material that comprises fibers with a hemiellipsoidal cross section, which are curved on one side and largely flat on the other side, and having a principal axis that is shorter than 1 mm and a secondary axis that is shorter than 200 µm, whereby the principal axis is longer than the secondary axis.

2. A sintered, highly porous body according to claim 1, wherein the fibers are twisted around their longitudinal axis.

3. A sintered highly pourous body according to claim 2, wherein at least 15 weight% of the fibers are twisted.

4. A sintered highly pourous body according to claim 3, wherein 40 to 60 weight% of the fibers are twisted.

5. A sintered highly pourous body according to claim 3, wherein the twisted fibers are twisted at least half a turn around the longitudinal axis, thereby enhancing sintering contacts and burn-off properties.

6. A sintered highly pourous body according to claim 3, wherein the twisted fibers are twisted at least one twist around their longitudinal axis.

7. Sintered, highly porous body according to claim 1 ,wherein the length of the secondary axis of the fibers decreases from their middle towards their ends.

8. A sintered highly pourous body according to claim 7, wherein the length of the secondary axis in a middle of at least a portion of the fibers is approximately 100 µm and the length of the secondary axis in an end of said portion of the fibers is approximately 20 µm.

9. A sintered highly pourous body according to claim 7, wherein for at least a portion of the fibers a ratio of the length of the secondary axis in the middle of said portion to the length of the secondary axis in the end of said portion is at least 2:1.

10. A sintered highly pourous body according to claim 7, wherein for at least a portion of the fibers a ratio of the length of the secondary axis in the middle of said fibers to the length of the secondary axis in the end of said fibers is at least 3:1.

11. A sintered highly pourous body according to claim 10, wherein at least 20 weight% of said fibers have said at least 3:1 ratio.

12. A sintered highly porous body according to claim 1, wherein the curved sides have recesses running crosswise to the longitudinal axis of the fibers.

13. A sintered highly porous body according to claim 1, further comprising at least one not sintered layer.

14. A sintered highly pourous body according to claim 13, wherein the not sintered layer comprises a perforated plate or a wire fabric formed of like material as the sinterable material.

15. A sintered highly porous body according to claim 1, wherein the body has a pore distribution in a range of approximately 5 to 150 μm.

16. A sintered highly pourous body according to claim 15, wherein the pore distribution is in the range of 10 to 100 μm.

17. A sintered highly pourous body according to claim 1, wherein said sinterable material consists of metallic fibers.

18. A sintered highly pourous body according to claim 1, wherein said sinterable material consists of a mixture of powders and fibers.

19. A sintered highly pourous body according to claim 1, wherein the principal axis of the fiber is shorter than approximately 500 μm and the secondary axis is shorter than approximately 100 μm.

20. A sintered highly pourous body according to claim 1, wherein the fibers have different lengths, thereby enhancing stability of a fiber matrix during sintering.

21. A sintered highly pourous body according to claim 1, wherein the fibers are buckled at least once along the longitudinal axis, thereby enhancing interlocking between the fibers.

22. A sintered highly pourous body according to claim 21, wherein at least 20 weight% of the fibers are buckled.

23. A sintered highly pourous body according to claim 1, wherein said body has a porosity of at least 80%.

24. A sintered highly pourous body according to claim 1, wherein said body has a porosity of at least 90%.

25. A sintered highly pourous body according to claim 1, wherein said body has a porosity of at least 93%.

26. A sintered highly pourous body according to claim 23, wherein said body has a substance of at least 50 g/m^2.

27. A highly pourous combustion element comprising a body having at least one layer made of sinterable material, said material comprising fibers having a hemiellipsoidal cross section on at least one side thereof so as to be curved on one side and largely flat on the other side, at least a portion of said fibers having a

principal axis that is shorter than 1 mm and a secondary axis that is shorter than 200 µm, whereby the principal axis is longer than the secondary axis.

28. The combustion element of claim 27 wherein said combustion element is one of an evaporating or wick element in auxiliary heatings and/or additional heatings, a flame support in burners, a heat distributor plate, a combustion supporting element, a heat exchanger and/or a catalyst for heterogeneous reactions.

29. A method for producing highly porous bodies with at least one layer made of a sinterable material, comprising fibers, comprising the steps of:

- cutting fibers to a length of a maximum of approximately 20 mm;

- applying a material including the fibers with a pouring volume of approximately 0.2 to 0.4 g/cm² after said cutting step; and

- sintering the material after said applying step.

30. The method according to claim 29, further comprising the step of compressing the material following the applying step.

31. The method according to claim 29, wherein the applying step includes applying the material onto at least one not sintered layer and subsequently sintering the not sintered layer in the third step.

32. The method according to claim 29, wherein the fibers in the cutting step have hemiellipsoidal cross section on at least one side thereof, which are curved on one side and largely flat on the other side, and having a principal axis that is shorter than 1 mm and a secondary axis that is shorter than 200 µm, whereby the principal axis is longer than the secondary axis.

33. The method according to claim 32, wherein said applying step comprises applying said fibers by scattering.

34. The method according to claim 33, wherein said scattering is effected by impact of directed mechanical oscillations on a heap of fibers while the fibers are filled into a pouring cast.

35. The method according to claim 34, wherein said oscillations of the heap of fibers is effected by an oscillating conveyor transporting fibers from the heap of fibers to the cast.

36. The method according to claim 33, wherein said scattering is effected by agitating a heap of fibers on a sieving surface while the fibers are filled into a pouring cast.

37. The method according to claim 33, wherein during the scattering a pouring cast into which the material is disposed agitates relatively to the material flow.

38. The method according to claim 32, wherein said applying step includes inserting at least one connection element into a cast in which the material is poured.

39. The method according to claim 30, wherein said compressing step includes forming a stable porous green body.

40. The method according to claim 31, wherein the sintering step forms a bond between the layer made of sinterable material and the not-sintered layer.